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AUTHOR Nowak, Glen; Thorson, Esther
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ABSTRACT

A study tested an information processing model that incorporates the concepts of episodic and semantic memory. The model was designed to provide for the concurrent study of three advertising and communication variables: product involvement, message appeal, and distraction in viewing conditions. Among the five hypotheses being tested were that positive emotional message appeals increase memory for and result in more positive evaluations of television commercials and that distraction will decrease memory and will negatively affect evaluation of television commercials. Subjects, 48 college juniors and seniors enrolled in an introductory advertising class, were administered a pretest to determine product involvement. In addition, subjects viewed commercials they had not previously seen and completed both a pretest and a posttest to evaluate message appeal. Finally, subjects viewed half of the commercials with no distractions and half of the commercials with distractions to gauge the effects of distractions on viewers. Results indicated that product involvement enhanced memory and evaluation of commercial messages, that positive emotional message appeals enhance evaluation, and that distraction harms both memory and evaluation. (DF)

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THE EFFECTS OF INVOLVEMENT, MESSAGE APPEAL, AND VIEWING CONDITIONS ON MEMORY AND EVALUATION OF TV COMMERCIALS

GLEN NOWAK AND ESTHER THORSON
School of Journalism and Mass Communication
University of Wisconsin-Madison
Madison, Wisconsin 53706

Paper presented to the Advertising Division,
Association for Education in Journalism and Mass Communication
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ABSTRACT

An information processing model that incorporates the concepts of episodic and semantic memory is developed and tested. Unlike previous single-variable paradigms, the episodic-semantic model attempts to provide a theoretical framework that allows for the concurrent study of three important advertising and communication variables: product involvement, message appeal, and distraction in viewing conditions. Five hypotheses are generated from the model and tested. Results indicate that product involvement enhances memory and evaluation of commercials, that positive emotional message appeals enhance evaluation, and that distraction harms both memory and evaluation. Significant interactions were found for product involvement and message appeal.

THE EFFECTS OF INVOLVEMENT, MESSAGE APPEAL, AND VIEWING CONDITIONS ON MEMORY AND EVALUATION OF TV COMMERCIALS

For a number of years, researchers and advertisers have examined the role of various situational and message component variables in the advertising communication process in order to improve and/or predict a commercial's effectiveness (Mitchell, 1983; Gorn, 1982; Houston and Rothschild, 1978; Thorson and Friestad, 1984). The research reported here is part of that tradition. It uses an information processing model that incorporates the concepts of episodic and semantic memory (Tulving, 1972) to generate hypotheses about how message structure variables influence memory and evaluation of products and advertising.

The model developed here is an expansion of Thorson and Friestad (1984). While the original model was primarily concerned with understanding how emotional responses influence memory for television commercials, the new model examines the role of involvement and distraction in viewing conditions. Predictions are made for recall, recognition, evaluation of products and and commercials, and intent to purchase.

All three main independent variables, product involvement (high vs. low), message appeal (positive emotional vs. neutral) and viewing conditions (distracting vs. nondistracting), have

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been considered individually as important mediators of advertising effects (Bowen and Chaffee, 1974; Bloch and Bruce, 1984; Brooker, 1981; Broadbent, 1958; Krugman, 1977; Thorson and Friestad, 1984). The present research, however, allows for concurrent consideration of the effects of the variables.

Before presenting the model, this paper will first deal with a general discussion on information processing of television commercials. Then the model will be discussed, and used as the basis for developing five hypotheses. The final section of the paper will present and discuss the results of an experiment in which message appeal, product involvement and viewing condition were manipulated and the hypotheses tested.

EPISODIC INFORMATION PROCESSING

One way to conceptualize the types of knowledge stored in human memory is to distinguish episodic and semantic processing. Tulving (1972) suggested that there are differences between memory that stores information about specific events experienced by a person, and memory that stores general knowledge about the world. The first kind of memory he called episodic, while the second he termed semantic. Episodic memory is event memory that stores episodes as unique autobiographical traces. In episodic memory, associations between events are generally in terms of their contiguity in time. All incoming information is processed and stored initially as episodic information.

The second type of memory, semantic knowledge, is derived by performing mental operations on information stored in episodic

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memory traces. Semantic memory can thus be viewed as consisting of a network of concepts, words, constructs and their interrelationships (Woodall, Davis and Sahin, 1982). While controversy exists over whether the two kinds of memory are actually separate (Atkinson, Herrmann and Wescourt; Crowder, 1976) or whether the distinction is just a useful way to classify different kinds of knowledge (Anderson and Bower, 1973; McCloskey and Santee, 1981), the distinction has proven useful in memory and advertising research (Kintsch, 1977; Klatzky, 1980; Thorson, 1984).

The event-like structure of television commercials allows application of the notion of episodic processing to the advertising communication process (Woodall, Davis and Sahin, 1982). Episodic processing and memory is involved when the viewer initially watches a television commercial (encodes the event) and later when s/he is asked to recall the commercial (decodes the event). While the person is watching a television commercial, there is episodic processing of the audio and video elements of the advertisement along with simultaneous processing of events in the viewing environment and internal events such as physiological states (pain, hunger), thoughts, and feelings. These memory traces vary in strength, however, as a function of such things as intensity of the experience, subjective meaningfulness and importance, attention to the message, and the individual's ability to understand the message. It is not necessary that such semantic operations as evaluation,

classification, judgement or comparison, ever be performed on episodic information or that the operations occur immediately after encoding. It is necessary, however, that the memory traces be available when the semantic operations are performed.

Although advertisers like to think that consumers carefully process television commercial episodes in order to enter product- or brand-related information into semantic memory, such operations, as noted above, may never occur, or may occur long after the advertising episode is experienced. In situations where semantic processing does not occur, the episodes originally encoded in memory are often difficult to retrieve (Beattie, 1983, 1982; Hastie and Carlston, 1980). In situations where episodic traces are not processed semantically, or are only minimally semantically processed, few associations are likely to be made by the viewer between the information in the commercial and the person's knowledge base. These situations correspond well to Krugman's (1965) conception of low involvement learning from television, where the viewer is seen as making few "connections" or "conscious bridging experiences" from a commercial to his or her life. In these situations, primarily episodic memory traces are created. Under the right conditions, however, television commercials can create both episodic and semantic memory traces. When a viewer is asked, for example, to list all the commercials s/he saw in a program the preceding evening, s/he must think through what s/he was doing last night, what shows s/he watched, and what commercials s/he saw. This is primarily an episodic

memory task. As soon as one attempts to jog memory with classificatory information, semantic memory may be initiated because that is where the complex network of words, concepts, properties and their interrelationships are linked together (Thorson and Friestad, 1984; Woodall, Davis and Sahin, 1982).

Episodic-Semantic Processing Model

Applying the episodic-semantic distinction to the hierarchy notion, Thorson (1984) noted that with a few changes in assumptions, these models distinguish between episodic and semantic processes. The elements of consumer awareness, such as the commercial and product awareness, are primarily episodic. If the consumer needs to know what s/he saw in an ad, s/he must go back to his/her experience in time with the ad. The encoding of the event is episodic and storage involves primarily episodic memory. Other information processing stages, such as product perceptions and evaluations (Preston, 1982), can involve both episodic and semantic processes. Product perceptions that involve nonevaluative remembering of advertised information are episodic. If the consumer takes information from the ads and organizes it into one or many taxonomic categorizations of products, then semantic processes are involved.

Insert Figure 1 about here

According to the model proposed here, an individual's memory and evaluation of a television commercial is the result of a number of variables, including attention, involvement, the type

of appeal used in the message, and the individual's knowledge and experience. While the model proposes three general stages, attention, interpretation, and brand response, it can be seen that more than a three-step process is involved. Interpretation of advertised information can range from simply liking the commercial to involving evaluations of the advertisement, product and brand.

To better understand the role of episodic and semantic processing in terms of memory for, and evaluation of, television commercials, message appeal, involvement and attention need to be considered individually.

Message Appeal

In the original episodic-semantic processing model developed by Thorson and Friestad (1984), it was proposed that if an individual experiences emotional response as a memory trace for a television commercial is laid down, then the memory trace will differ in both content and intensity from a memory trace that does not generate an emotional response. The presence of emotion, it was found, results in more episodic details being processed and stored and greater enhancement of executional details (Thorson and Friestad, 1984). The results of previous researchers (Brooker, 1981; McGuire, 1978) also support this notion.

The episodic-semantic processing model proposed here allows us to consider more than just "how much information" is presented in a commercial. By considering how human memory stores,

operates on, and retrieves information, the memory trace laid down during the viewing of a television commercial can contain more than just the factual information presented. Unlike previous conceptualizations, where emotional or "irrational" commercials were viewed to contain less substantive, factual information (Krugman, 1965; Preston and Bowen, 1971; Zielske, 1982), the model here views emotional commercials as having an affective component that neutral or factual appeal commercials do not have. This affective component has the potential to increase an advertisement's effectiveness in terms memory and evaluation.

Product Involvement

A number of conceptualizations of the involvement construct exist (Antil, 1983; Houston and Rothschild, 1978; Muncy and Hunt, 1984), but the concept shall be used here to refer to product involvement. This conceptualization allows us, in terms of the model, to view involvement as an independent variable in the advertising communication process that differs by individual, product and/or situation. To operationalize this conception of involvement, the Personal Involvement Inventory developed by Zaichkowsky (1985) was used to differentiate high- and low-involvement products. This measure of product involvement fits with the episodic-semantic model proposed here in that it results in a product involvement classification system that is consumer, not product, defined (Lastovicka, 1979).

In terms of the model, when a commercial is experienced, a set of associations are laid down in the form of a memory trace.

This trace may include the product, the brand name and product characteristics. Semantic processing and memory represents the formation of these associations, and the notion that products that are familiar, meaningful or important to the consumer are likely to better represented in that person's cognitive structure (Beattie, 1982; Johnson and Russo, 1980; Chi, Glaser and Rees, 1982).

Viewing Condition

The attention stage in the model takes into account the fact that an individual is capable of being consciously aware of only a small part of his/her surrounding environment at any given moment (Broadbent, 1958; Kahneman, 1973). The attention stage captures two key notions here, limited cognitive capacity and selective attention.

Cognitive capacity is "the limited pool of energy, resources, or fuel by which some cognitive processes are mobilized and maintained" (Johnston and Heinz, 1978). A common technique used to measure the amount of cognitive capacity used by a cognitive task is having subjects perform a secondary task (Kahneman, 1973). As the primary task uses more cognitive capacity, performance on a secondary task worsens (Britton, Westbrook and Holdredge, 1978). In terms of television viewing, if the commercial becomes the secondary task for the viewer, less cognitive capacity will be devoted to it and processing of the commercial's information will be worsened. As studies involving shadowing and dichotic listening have illustrated, comprehension

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is greatest for the attended to voice or stimuli (Moray, 1969; Norman, 1969).

While memory is harmed by attention to competing stimuli, there is evidence that attitude may be positively affected (Bither, 1972; Gardner, 1970; Festinger & Maccoby, 1964). The presumed reason is that attentional diversion from a persuasive message leads to less counterarguing and detection of logically poor arguments. With low involvement stimuli such as television commercials, however, it is unlikely that conscious counterarguing ever takes place. Under the model developed here, attitude is more likely to be influenced by affect associated with executional aspects of commercials and laid down in the episodic trace. The stronger the affect in the trace, the more positive eventual attitude structure will be. This conception predicts more positive attitudes under nondistracted conditions. This conception predicts more positive attitudes under nondistracted conditions.

Hypotheses

It is now possible to generate hypotheses about the effects of emotion, involvement, and distraction conditions. Assuming that commercials with positive emotional appeals have a greater potential to elicit a positive emotional response that becomes part of the episodic memory trace for a commercial, and assuming that the presence of emotion in a message appeal increases the probability that semantic memory will be activated and also contain positive emotional traces, the model leads to the

following hypotheses regarding message appeals:

H1: Positive emotional message appeals will increase memory for, and result in more positive evaluations of, television commercials.

For product involvement, assuming that semantic knowledge of advertised products will vary widely by consumer and that matching the type of information in an advertisement to prior knowledge can facilitate semantic processing, it is hypothesized:

H2: High product involvement will increase memory for, and result in more positive evaluations of, television commercials.

With regard to viewing conditions, it is assumed that increased comprehension should result in better memory for a television commercial and that information receiving the most attention will have a greater probability of invoking semantic processing. Based on the assumption that distraction during exposure to a persuasive message decreases the likelihood of successful creation of traces containing affect cues that will influence development of positive attitudes when semantic operations are stimulated:

H3: Distraction will decrease memory for television commercials, and will negatively affect evaluation of television commercials.

For interaction predictions, the model suggests that involvement and emotion have independent effects on increasing the probability of semantic processing and enhanced episodic processing, and therefore it is predicted:

H4: Presence of neither emotion or involvement will produce the least memory and most negative evaluations. Presence of either emotion or involvement should produce approximately equal memory and evaluation, and presence of both variables

should produce the highest memory and evaluations.

Finally, given that distraction conditions lower memory performance, commercials should benefit most from the presence of emotion and product involvement under distracting conditions. Hence:

H5: Positive emotional message appeals and high product involvement will enhance memory and evaluations more under distraction than under nondistraction.

METHODOLOGY AND EXPERIMENTAL DESIGN

A 2 X 2 X 2 factorial design was used to test the hypotheses. Product involvement and message appeal were within-subject variables, while viewing condition was a between-subject variable. Products were classified as either high or low involvement based on a pretest (Zaichkowsky's Personal Involvement Inventory, 1985) administered to the subjects eight weeks prior to the actual experiment. The subjects were not aware of the purpose of the test. Based on the pretest, eight commercials containing high involvement products and eight commercials containing low involvement products were selected for the experiment. To control for exposure, none of the commercials used was previously seen by subjects in the experiment. Subjects tested in the experiment were 48 college juniors and seniors enrolled in an introductory advertising class.

After classifying commercials in terms of high and low involvement products, the commercials were further subdivided by message appeal. Thus, four of the commercials containing high involvement products had positive emotional message appeals while

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four had neutral appeals. Positive emotional commercials were commercials judged to be capable of eliciting feelings of happiness or contentment. Neutral commercials were those that had straight-forward presentations of factual information. As a result of the classification scheme, there were four categories of commercials each containing four commercials. Sixteen different products were represented by the commercials. The commercials were part of a 25-minute television program viewed by the subjects. A pretest screening was used to determine whether the commercials chosen had positive emotional or neutral appeals. The subjects in the experiment also were asked to characterize the message appeals as part of a post-test manipulation check.

To manipulate viewing condition, a distraction condition was designed. Half of the commercials were viewed with no distraction, while half were viewed under conditions of simultaneous presentation of audio and visual information in the form of "distractor" commercials on a second television screen. Subjects were instructed to attend to both televisions as best they could. Based on the previous discussion, it was assumed that under the distraction condition, the second television would take cognitive capacity away from the commercials presented on the first television. Attention was assumed to be greater (as far as the primary stimulus material was concerned) in the nondistracted viewing conditions.

Results

Manipulation Checks

Perception of emotion in the commercials was indexed by having subjects rate each commercial as emotional (2) or neutral (1) or uncertain (1.5). The mean for neutral commercials was 1.2 and for emotional 1.7 [$F(1,44)=184.75$, $p<.001$]. Product involvement was also indexed by having subjects rate each product as involving (140) or uninvolving (20) using the Zaichkowsky (1985) Personal Involvement Inventory semantic differential scales. This resulted in significantly higher involvement scores for the high-involvement products ($x = 103$) than the low-involvement products ($x = 53$) [$F(1,82)=55.1$, $p<.001$]. Involvement was also indexed by agree (7)-disagree (1) answers to interest in reading information about how each product was made [HI=2.7, LO=1.9, $F(1,42)=47.9$, $p<.001$], whether brand comparisons had been made in the product category [HI=3.7, LO=2.6, $F(1,42)=54.7$, $p<.001$], and whether there were perceived differences in the brands [HI=3.7, LO=3.0, $F(1,42)=11.1$, $p<.002$]. Each of these favored high-involvement products.

The final manipulation check concerned subject evaluation of how much attention was paid to each commercial. On a 7-point scale from no attention (1) to full attention (7), nondistracted commercials were rated significantly higher (N=4.8) than distracted commercials (D=3.6) [$F(1,42)=64.4$, $p<.001$]. With the manipulations verified, we turn to the hypotheses.

Effects of Involvement

Hypothesis 1 suggested product involvement would have an enhancing effect on both memory and evaluations. There was overwhelming support. High-involvement products showed higher brand name recall (H=.30, L=.23), product claim recall (H=.29, L=.23), recall of executional details (H=.98, L=.78) and higher brand name (H=.81, L=.66) and product claim recognition (H=.77, L=.53). All comparisons were significant with $F(1,42)$ and $p<.001$. Only product category recall and recognition failed to show a significant effect of product involvement.

Product involvement also made evaluations more positive, except for a slight increase in negative comments in the free recall protocols (H=.02, L=.003). Liking for the commercials (HI=4.5, LO=3.6), for the brands (HI=3.8, LO=3.3), for the product category (H=5.1, L=3.2), and intention to purchase were all higher for high-involvement products with $F(1,42)$ and $p<.001$.

Effects of emotion

Hypothesis 2 suggested that emotion in commercials would also enhance memory and evaluations. There was little support for memory enhancement. Brand name recognition was higher for emotional than neutral commercials (E=.78, N=.69) [$F(1,42)=6.51$, $p<.02$] and product category recognition was marginally higher for emotional commercials (E=.88, N=.83) [$F(1,42)=3.01$, $p<.09$]. Emotion had no other significant memorial effects.

There was more support for emotional influence with regard to evaluations. In the free recall protocols, subjects made

significantly more positive comments for emotional than neutral commercials (E=.05, N=.02) [F(1,45)=5.81, p<.02]. Emotional commercials also showed greater product liking (E=4.5, N=3.8), and liking for the commercials (E=4.6, N=3.5) with F(1,42) and p<.001. Purchase intention was marginally higher for emotional commercials (E=4.0, N=3.5) [F(1,42)=3.04, p<.09], but there was no significant difference for brand liking.

Effects of distraction

Hypothesis 3 suggested the distracted commercials would show reduced memory and more negative evaluations. There was clear support for reduced memory. The distracted commercials showed lower product category recall (D=.43, N=.63), brand name recall (D=.19, N=.34), product claim recall (D=.18, N=.34), and recall of executional details (D=.65, N=1.08) with F(1,42) and p<.05. Distracted commercials also showed poorer brand name recognition (D=.67, N=.79) and product claim recognition (D=.56, N=.74). There was no difference for product category recognition.

Where significant, distraction effects on evaluations were consistent with the hypothesis. There were no significant differences for brand and product category liking. Liking for commercials (D=3.8, N=4.2) and purchase intention (D=3.5, N=3.8) both showed more positive responses in the nondistracted condition with F(1,42) and p<.05.

Involvement-emotion interactions

Hypothesis 4 suggested that involvement and emotion would have additive effects on memory and evaluation, with the absence

of both variables yielding lowest values, presence of one or the other intermediate values, and presence of both the highest values.

Except for recognition, there was general support for the predictions. Of the recall results, only product claim recall showed a significant I X E interaction [$F(1,45)=6.87$, $p<.01$]. Here, HE was significantly higher (.36) than the other three conditions (HN=.22, LE=.21, and LN=.24).

Recognition of brand name [$F(1,46)=8.36$, $p<.006$] and product category [$F(1,46)=6.78$, $p<.02$] showed significant I X E interactions of a differing pattern. For brand name recognition, HE and HN were equal (.81), LE was intermediate (.74) and LN was the lowest (.57). For product category recognition, HE, HN, and LE were equal (x =.88) and LN was lower (.78).

The interactive effects of I X E on the evaluation measures were similiarly patterned and can be summarized with the attitude toward the commercial results shown in Figure 2. For product and commercial liking and intent to purchase, HE showed the highest values, HN and LE were intermediate, and LN was lowest.

Only for brand liking was the patterning somewhat different, primarily in that HE (3.9) was not elevated over the other three conditions (HN=3.7, LE=3.2, and LN=3.4). In general, then, there was support for the hypothesis that presence of both emotion and product involvement leads to stronger memory and more positive evaluations of both brands and commercials.

Interaction of distraction with involvement and emotion

Hypothesis 5 suggested that emotion and involvement would have greater effects under the distracted than the nondistracted viewing condition. While, as noted above, distraction did lower memory and had little effect on evaluations, it did not show any significant interactions with emotion or involvement.

DISCUSSION

Product involvement both enhanced memory for commercial messages and made message evaluations more positive. While emotion also made evaluations more positive, it failed to produce the predicted enhancement effect on memory. Distracting subjects with dual television inputs damaged memory and had mixed positive effects on evaluations. While emotion and product involvement interacted with each other, distraction interacted with neither of the variables singly or in a three-way relationship. In the simplest comparisons between the results and the model, it would appear that attentional processes, at least those interrupted by the distraction manipulation, operate independently, probably prior to the locus of product involvement and emotion effects. The interaction of involvement and emotion presumably indicates that these two variables share a locus of influence. It is not clear, however, whether that locus is at the level of episodic or semantic memory or both. This question remains for further research.

Several methodological issues are raised in the research. First, distracting viewers with dual inputs may or may not be

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similiar to the distraction that viewers experience during natural viewing. It is important in future research to vary the operational definition of distraction, searching for converging influences of these attentional manipulations.

A second methodological issue concerns the use of real commercials. While this promotes maintenance of realism, it means that the emotion variable is correlational rather than manipulated. Hence, the emotion results do not allow the same causal inference-making that the manipulation of involvement and distraction do. In future research, it would be important to create commercials rather than only sample from those available. The drawback here, of course, is the funding and expertise to produce commercials of the necessary quality to guarentee realism.

Perhaps the most significant aspect of the research presented here is its manipulation of several advertising variables to allow the study of interactive effects. Traditionally, advertising research has used single-variable paradigms and experimental designs. The real world of advertising, though, revolves around a highly complex set of variables and makes understanding of interactive effects critical for the development of a science of advertising. The model proposed here is an attempt to offer a theoretical framework that takes this complexity into account.

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FIGURE 1

EPISODIC AND SEMANTIC MEMORY PROCESSING OF TELEVISION COMMERCIALS

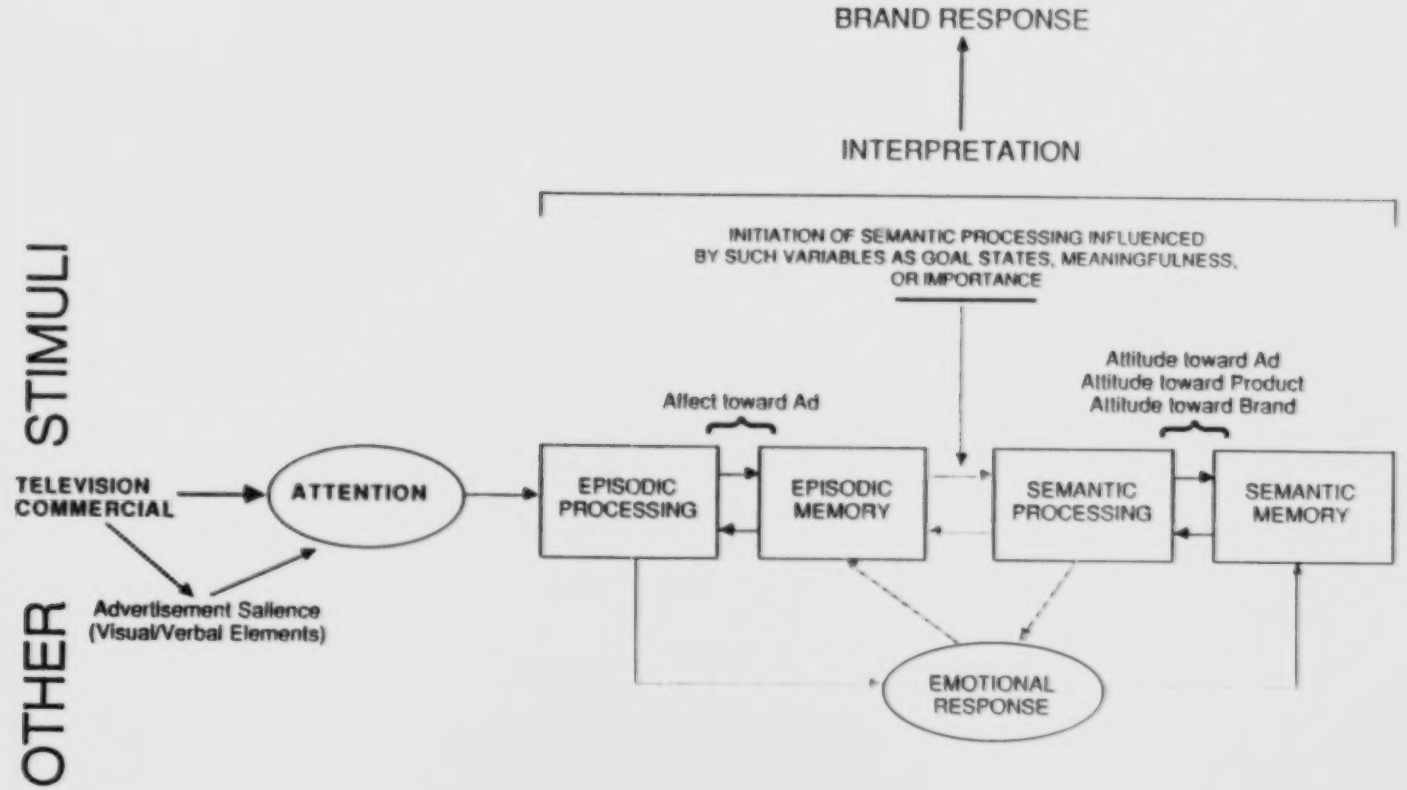
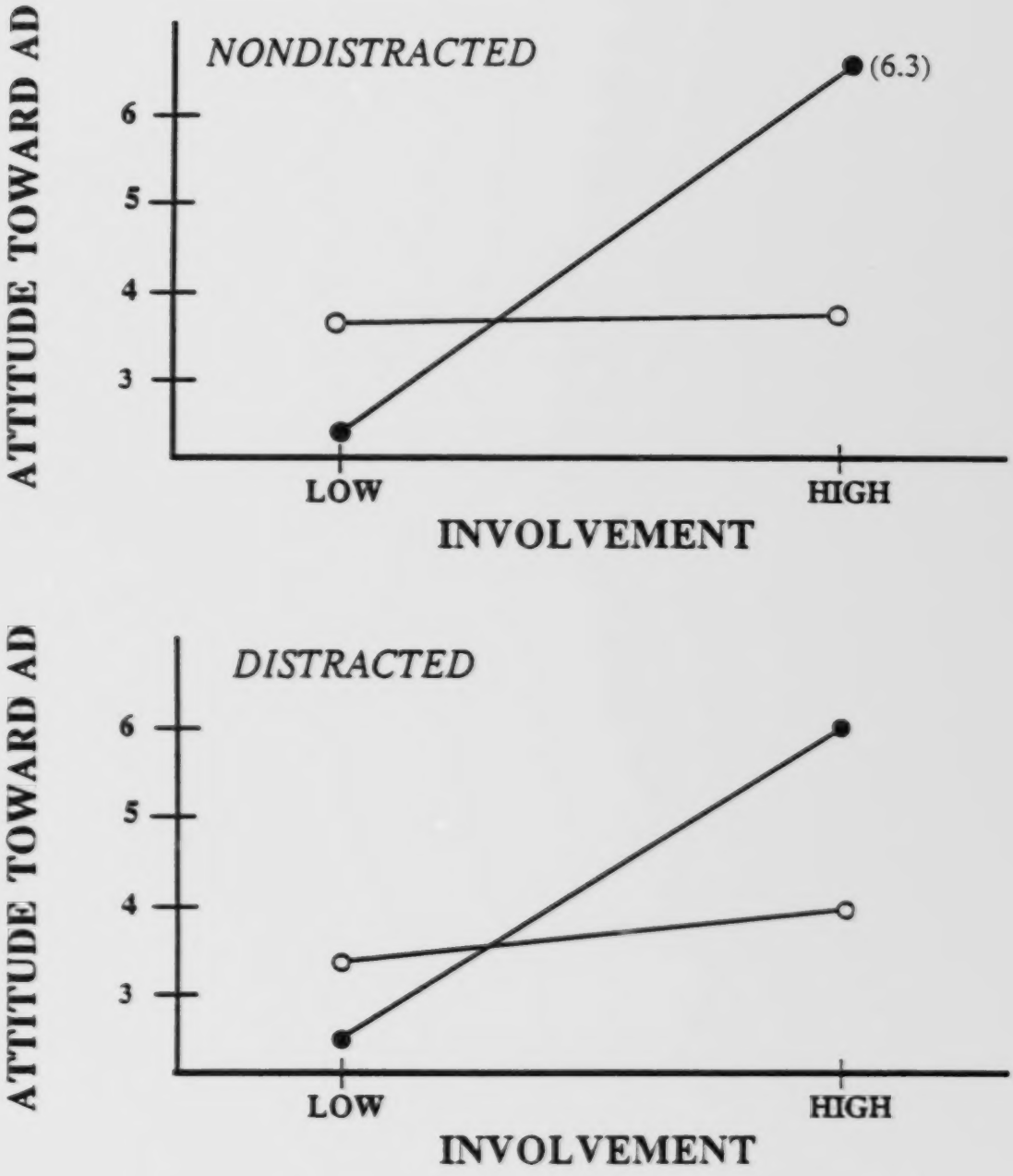


FIGURE 2



Emotion: $F(1,45)=27.65, p<.000$
Involvement: $F(1,45)=207.75, p<.000$
Emotion X Involvement: $F(1,45)=190.88, p<.000$